

## ABSTRACT OF INVENTION

Systems and methods are provided for performing signal processing on communication data utilizing scale reduced Fast Fourier Transform computations. The present invention provides scaling in a Fast Fourier Transform computation at stages where it is determined that bit growth is present and omits scaling at stages where it is determined that bit growth is absent. The determination is based on the characteristics of the input signal. The determination can be made off-line by modeling and/or simulation or in real-time by analyzing the input signal to determine stages at which bit growth is present and/or absent and setting the stage scaling accordingly.